

noble metals, Mn, Fe, Co, Ni, Cu and carbon, the nanohole passing through the anodized film from the surface of the anodized film to the surface of the substrate, said method comprising the steps of:

(i) forming a film including aluminum on the substrate having a surface containing at least one material selected from the group consisting of semiconductors, noble metals, Mn, Fe, Co, Ni, Cu and carbon; and

(ii) anodizing the film including aluminum,
wherein in step (ii) the anodizing is conducted while monitoring an anodization current and the anodizing of the film including aluminum terminates after a reduction in the anodization current from a steady-state value is detected.

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27. (Twice Amended) A method of producing a nanostructure according to Claim 26, wherein the anodizing terminates after the anodization current is decreased from the steady-state value to 95% or below of the steady-state value.

28. (Amended) A method of producing a nanostructure according to Claim 26, wherein an anodization voltage is applied to the film including aluminum, the anodization voltage being supplied from the substrate side.

29. (Amended) A method of producing a nanostructure according to Claim 26, further comprising the step of expanding the diameter of the nanohole by means of etching, after completion of said anodizing step.

30. (Amended) A method of producing a nanostructure according to
Claim 26, further comprising the step of forming an anodization starting point on the
surface of the film including aluminum prior to said anodizing step.

31. (Amended) A method of producing a nanostructure according to
Claim 30, wherein a recessed portion serving as the anodization starting point is formed on
the film including aluminum prior to said anodizing step.

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32. (Amended) A method of producing a nanostructure according to
Claim 26, further comprising the step of embedding an inclusion into the nanohole after
said anodizing step, the nanohole comprised of aluminum oxide.

33. (Amended) A method of producing a nanostructure according to
Claim 32, wherein said embedding step is performed by means of electro-deposition.

34. (Amended) A method of producing a nanostructure according to
Claim 33, wherein the surface of the substrate includes a high-resistance part, and wherein
said method further comprises a step of converting the surface at the bottom of the
nanohole into a low-resistance surface prior to the electro-deposition.

35. (Amended) A method of producing a nanostructure according to
Claim 34, wherein the surface of the substrate includes a silicon oxide and the surface is

etched with an aqueous solution containing hydrofluoric acid or an alkaline aqueous solution.

36. (Twice Amended) A method of producing a carbon nanotube device, said method comprising the steps of:

forming a film including aluminum on a substrate having a surface including an n-type semiconductor region;

anodizing the film including aluminum over the entire thickness thereof so as to form an anodized film having a nanohole;

electro-depositing a catalytic fine particle on the surface at the bottom of the nanohole; and

growing carbon nanotubes from the catalytic fine particle in the nanohole, wherein in said anodizing step the anodizing is conducted while monitoring an anodization current and the anodizing of the film including aluminum terminates after a reduction in the anodization current from a steady-state value is detected.

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[Please add Claims 37-50 as follows:]

--37. (New) A process of producing a nanostructure comprising an anodized film including a nanohole on a substrate, said process comprising the steps of:

- (i) preparing a film including aluminum on the substrate; and
- (ii) anodizing the film,